

Date: Thursday, 5/3/2007 11:23:54 AM
User: Kim Johnston

Process Sheet

| | |
|--|---|
| Customer : CU-DAR001 Dart Helicopters Services | Drawing Name : 350/355 AS X-TUBE FWD UNDER REVIEW |
| Job Number : 32154 | |
| Estimate Number : 12485 | |
| P.O. Number : <i>N/A</i> | Part Number : D350748101 |
| This Issue : 5/3/2007 S.O. No. : <i>NA</i> | Drawing Number : UNDER REVIEW <i>DL 07.05.10</i> |
| Prsht Rev. : NC | Project Number : N/A |
| First Issue : <i>N/A</i> | Drawing Revision : N/A |
| Previous Run : 32153 | Material : <i>N/A</i> |
| | Due Date : 6/10/2007 Qty: 1 Um: Each |
| Written By : _____ | |
| Checked & Approved By : <i>07.05.03</i> | |
| Comment : Est Rev: A New Issue 06-07-05 JLM | |
| Est Rev: B Update qty of MS21042L5 06-09-12 KJ | |

Additional Product

Job Number:



| | | |
|---------|-----------------------|---------------|
| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|

| | | |
|-----|----|------------------|
| 1.0 | DC | DOCUMENT CONTROL |
|-----|----|------------------|



RS 07.05 31

Comment: Photocopy bluefile & type labels per PPPD350-748-101 CHG001

| | | |
|-----|--------|---------------------------------------|
| 2.0 | 32154A | X-TUBE AS 350/355 HI FWD UNDER REVIEW |
|-----|--------|---------------------------------------|



Comment: Sub-Component X-TUBE AS 350/355 HI FWD
D350-748-141 B *32104A*

| | | |
|-----|-------------|-----------------------|
| 3.0 | PACKAGING 1 | PACKAGING RESOURCE #1 |
|-----|-------------|-----------------------|



Comment: PACKAGING RESOURCE #1
Pick Packing Kit

| | | |
|-----|--------|------------|
| 4.0 | D35001 | 350 SADDLE |
|-----|--------|------------|



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
350 SADDLE
Batch: *1331076*

SEP

| | | |
|-----|--------|---------|
| 5.0 | D35011 | BUSHING |
|-----|--------|---------|



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
BUSHING *1331077*
Batch: *1331077*

7/11/14 SO

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:23:54 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD UNDER REVIEW

Job Number: 32154

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M104322

SP

7.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M105941

SP

8.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M104679 M104936

SP

9.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M105426

SP

10.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M104156

SP

11.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M105054

SP

12.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M105430

7-11-14 SP 1x

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: D Date: 07/11/15
 QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:23:54 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD UNDER REVIEW

Job Number: 32154

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



7/11/14



Comment: INSPECT 100% KITS FOR COMPLETENESS

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-101

Location:

PPP Rev:

PPP A

[Signature]

AS 7/11/14

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

[Signature] *7/11/15*

Job Completion



U 5/11/15

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:24:12 AM
 User: Kim Johnston

Process Sheet

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|-----------------------|---|------------------|---|
| Customer | : CU-DAR001 Dart Helicopters Services | Drawing Name | : X-TUBE AS 350/355 HI FWD UNDER REVIEW |
| Job Number | : 32154A | | |
| Estimate Number | : 12484 | | |
| P.O. Number | : N/A | Part Number | : D350748141 |
| This Issue | : 5/3/2007 | S.O. No. | : N/A |
| Prsht Rev. | : NC | Drawing Number | : D350-748-141-UR |
| First Issue | : N/A | Project Number | : N/A |
| Previous Run | : 32153A | Drawing Revision | : 02 |
| | Type : LANDING GEAR | Material | : N/A |
| Written By | : | Due Date | : 6/10/2007 |
| Checked & Approved By | : | Qty: | 1 Um: Each |
| Comment | Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update cadplate process 06-09-12 KJ | | |

Additional Product

Job Number:



| | | |
|---------|-----------------------|---------------|
| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|

| | | |
|-----|----|------------------|
| 1.0 | DC | DOCUMENT CONTROL |
|-----|----|------------------|



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D350-748-141 CHG001

| | | |
|-----|----------|--------------------|
| 2.0 | D6017115 | Crosstube Material |
|-----|----------|--------------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Crosstube Material

D6017-115

2.339" OD X 2.000" ID

Batch: 27471

BG 07.07.13

①

| | | |
|-----|------------|----------------------------|
| 3.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE |
|-----|------------|----------------------------|



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs on both ends as per Folio FA648

2-Turn first side as per Folio FA648

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-141.

JP 02/07/14

| | | |
|-----|-----|------------------------------|
| 4.0 | QC1 | INSPECT ALL DIM TO DIM SHEET |
|-----|-----|------------------------------|



Comment: INSPECT ALL DIM TO DIM SHEET

JP 02/07/14

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: AD Date: 07/07/14
 QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|----------|------|--|----------------------------------|--|------------------|---------------------------|----------------------------------|--------------------------|
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| 07/07/14 | 3.0 | One coffee was too small of .001" because I change the insert of finish Tools. The coffee add a tape on IT | UP 07.07.14 per QSI 042 | BENDING STRESS IN CUFF IS LESS THAN IN TAPERED SECTION, & CUFF SECTION IS FAR STRONGER. TP-D350-748-3 & TP-D350-748-1 UNAFFECTED - TUBE OK | D.F. 07/07/14 | EP 07/07/14 | UP 07.07.14 per QSI 042 | EP 07/07/14 |
| | | | | | | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:24:12 AM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 32154A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA648

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-141.

3-Scribe Part & Batch as per Dwg D350-748-141

SF 07/07/14

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

SF 07/07/14

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

Batch # is 300000
Sn 07/07/26

(X1)

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Remove all Machining Marks

JD 7-7-26

9.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 4289

Heat Treat to min 180 KSI As per Dwg D350-748-141

(MIL-T-6736 OR AMS 2759-1C)

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

P/JLL 7.8.02

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformaty is attached

CP 7/08/24 @

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector | |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 32154A

Part Number: D350748141

Job Number:



Seq. #: Machine Or Operation:

Description:

11.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

2009-10-01

12.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

EL 7-9-12

13.0

QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

5 07/10/05

14.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill Tube as per Dwg D350-748-141 Using DT8876 Drill Jigs;
Set-up drill table as per QSI 010

EL 7-10-5

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

AWM 07-10-03

4-Remove all marks from tube within limits of D350-748-141

5-Apply a light coat of LPS3 on the interior of tube

Batch: *M104161*

EL 7-9-12

(P10)

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

EL 07/10/05

16.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: *4787*

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

07/10/11

(1)

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: AD Date: 07/16/14
 QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|----------|------|---|-----------------------------|---|----------------|------------------------------|-----------------------------|------------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| 07/16/14 | # | one tube is too long one side of the height. off by 0.250 0.125" RC Buler | <i>[Signature]</i> @xall | cut to mark the height even. cut 0.250" off side "B". | EL 7-16-5 | <i>[Signature]</i> Hidlos | <i>[Signature]</i> @xall | <i>[Signature]</i> Hidlos |
| | | | | | | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:24:12 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 32154A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

7/11/06 SP (IX)

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5 07/11/07

19.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Prime Outside of Tube as per Dart QSI 005 4.2

7 ml 07 11 08 (1)

20.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

5 07/11/07

21.0

D35021

SUPPORT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch: 32205

ml 07 11 13

22.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: 34642

ml 07 11 13

23.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Insert

Batch: 100621

ml 07 11 13

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:24:12 AM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 32154A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Washer

Batch: 105442

M 07 11 13

25.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: 102787

M 07 11 13

26.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Screw

Batch: 18836

M 07 11 13

27.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

M 07 11 13

28.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07-11-13 (1)

29.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

Location: AN

PPP Rev: 32154

07/11/24 0

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 32154A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

ADG/11/14 (1)

Job Completion



u 8.11.14

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

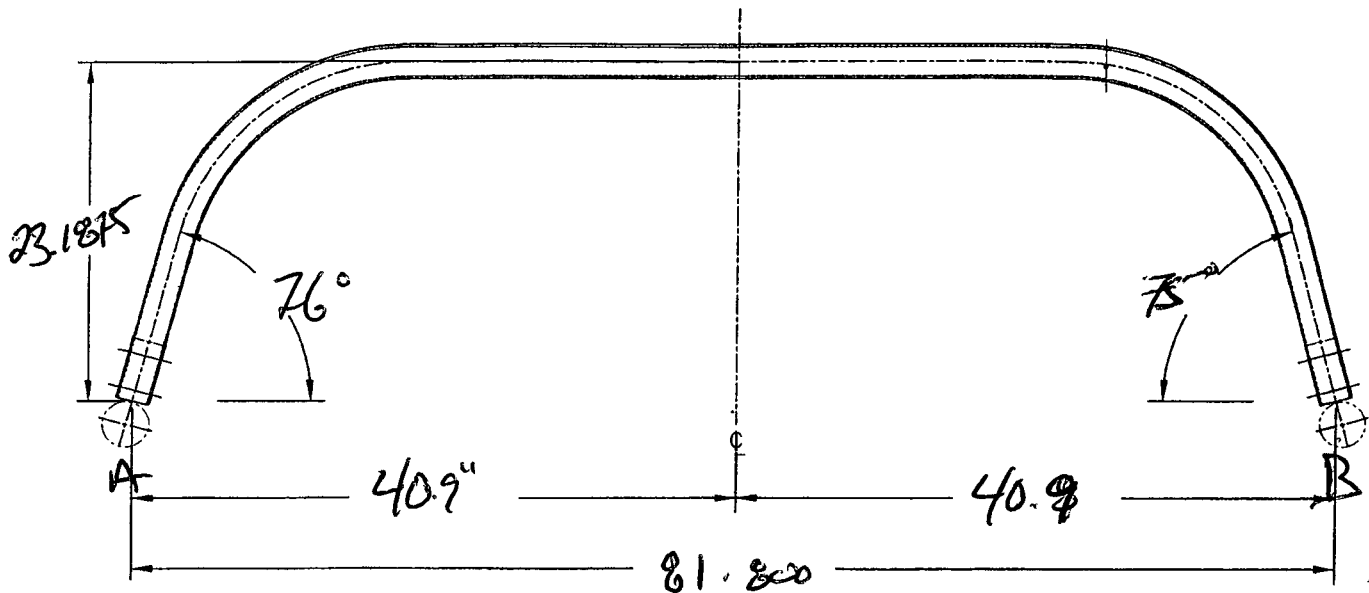
QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

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|---|--|--------------|--------------|
| DART AEROSPACE LTD | | Work Order: | 32154A |
| Description: Crosstube High Fwd (AS350/355) | | Part Number: | D350-748-101 |
| Inspection Dwg: D350-748-141 Rev: D | | Page 1 of 1 | |

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.13 | 23.37 |
| 1/2 Span | 40.78 | 41.02 |
| Angle | 75 | 77 |
| Total Span | 81.56 | 82.04 |



| Comments |
|-------------------------|
| cut 0.25" off side "B". |
| |
| |

| | |
|-----------------|---------|
| QC15 Inspection | 2/11/05 |
| Date | |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|------------|--------------------|
| A | 07.02.06 | New Issue | KJ/JM | <i>[Signature]</i> |

| | | | |
|---|--|---------------------|--------------|
| DART AEROSPACE LTD | | Work Order: | 32154A |
| Description: Crosstube Assembly (AS350/355 High Fwd) | | Part Number: | D350-748-141 |
| Inspection Dwg: D350-748-141 Rev: <i>ED</i> | | Page 1 of 1 | |

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

| Inspection Sheet Drawing Dimension | | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|---------------------------------------|--------|---------------|---------------------|--------|--------|-------------------------|----------|
| SIDE A | 2.240 | +0.005/-0.000 | 2.239 | | | | |
| | 2.180 | +0.005/-0.000 | 2.179 | | | | |
| | 2.180 | +0.005/-0.000 | 2.179 | | | | |
| | 2.237 | +0.005/-0.000 | 2.236 | | | | |
| | 2.272 | +0.005/-0.000 | 2.271 | | | | |
| | 2.306 | +0.005/-0.000 | 2.305 | | | | |
| | 2.339 | +0.005/-0.000 | 2.338 | | | | |
| | 2.339 | +0.005/-0.000 | 2.338 | | | | |
| | | | | | | | |
| | 0.062 | +/-0.010 | .062 | | | | |
| | 4.26 | +/-0.030 | 4.26 | | | | |
| | R0.063 | +/-0.010 | .063 | | | | |
| | R0.50 | +/-0.030 | .500 | | | | |
| | | | | | | | |
| SIDE B | 2.240 | +0.005/-0.000 | 2.240 | | | | |
| | 2.180 | +0.005/-0.000 | 2.180 | | | | |
| | 2.180 | +0.005/-0.000 | 2.180 | | | | |
| | 2.237 | +0.005/-0.000 | 2.237 | | | | |
| | 2.272 | +0.005/-0.000 | 2.272 | | | | |
| | 2.306 | +0.005/-0.000 | 2.306 | | | | |
| | 2.339 | +0.005/-0.000 | 2.339 | | | | |
| | 2.339 | +0.005/-0.000 | 2.339 | | | | |
| | | | | | | | |
| | 0.062 | +/-0.010 | .062 | | | | |
| | 4.26 | +/-0.030 | 4.26 | | | | |
| | R0.063 | +/-0.010 | .063 | | | | |
| | R0.50 | +/-0.030 | .500 | | | | |
| | | | | | | | |
| | 110.27 | +/-0.060 | 110.27 | | | | |

| | | | |
|---------------------------------|--------------------|----------------------------|-----|
| Measured by: <i>J.S.</i> | Audited by: | Prototype Approval: | N/A |
| Date: 07/07/14 | Date: | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|------------------------------|-----------------|----------|
| A | 06.11.09 | New Issue (P/O D350-748-101) | KJ/JLM <i>A</i> | <i>B</i> |



| | | | |
|----------------------|-----------------------|--|------------------------|
| DESIGN <i>GP</i> | DRAWN BY <i>GP</i> | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| CHECKED <i>HA</i> | APPROVED <i>HA</i> | DRAWING NO. D350-748-141 | REV. D SHEET 1 OF 3 |
| DATE 06.10.31 | | TITLE CROSSTUBE (AS 350/355 HI FWD) NTS | |
| A | 06.03.31 | NEW ISSUE | |
| B | 06.06.30 | ADD D6017-115 & PRIME AND PAINT | |
| C | 06.08.14 | ADD CAD PLATING | |
| D | 06.10.31 | MAG. PARTICLE AND CAD PLATE AS MFD. | |

RELEASED

06.10.31 *HA*

| QTY | P/N | DESCRIPTION |
|-----|---------------|--|
| X | D350-748-141 | CROSSTUBE ASSEMBLY (AS 350/355 HI FWD) |
| 1 | D6017-115 | CROSSTUBE (OR D6015-125) |
| 2 | D3502-1 | SUPPORT |
| 2 | D2856-400-710 | ABRASION STRIP |
| 1 | AELS-1032-225 | INSERT |
| 1 | AN960JD10 | WASHER |
| 2 | MS21920-20 | CLAMP (PER DART SPEC. M-MS21920-20) |
| 1 | MS27039-1-10 | SCREW |

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6017-115 OR D6015-125
FINISHED LENGTH = 110.27 ± 0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR $\varnothing 0.297$ HOLE.

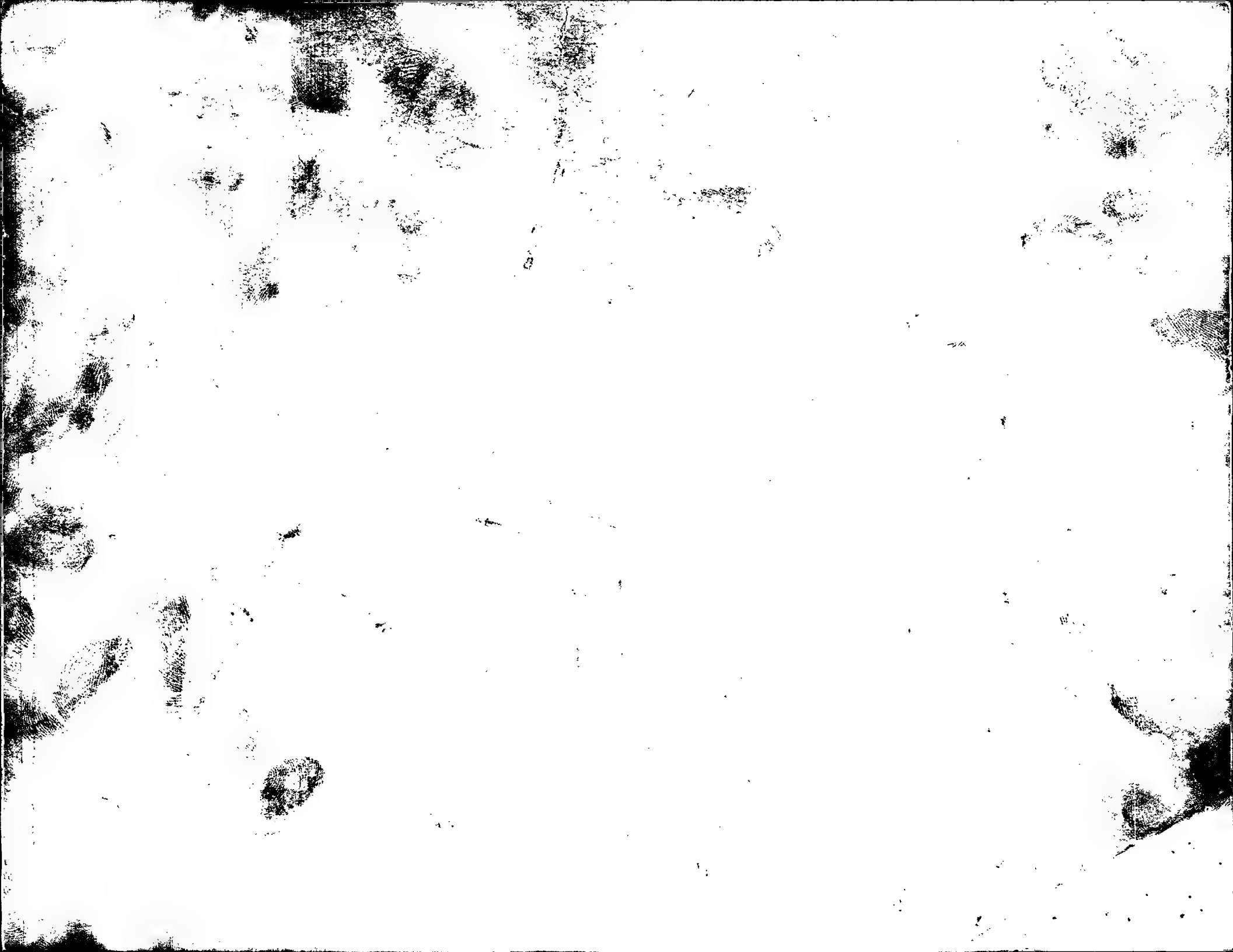
UNDER REVIEW

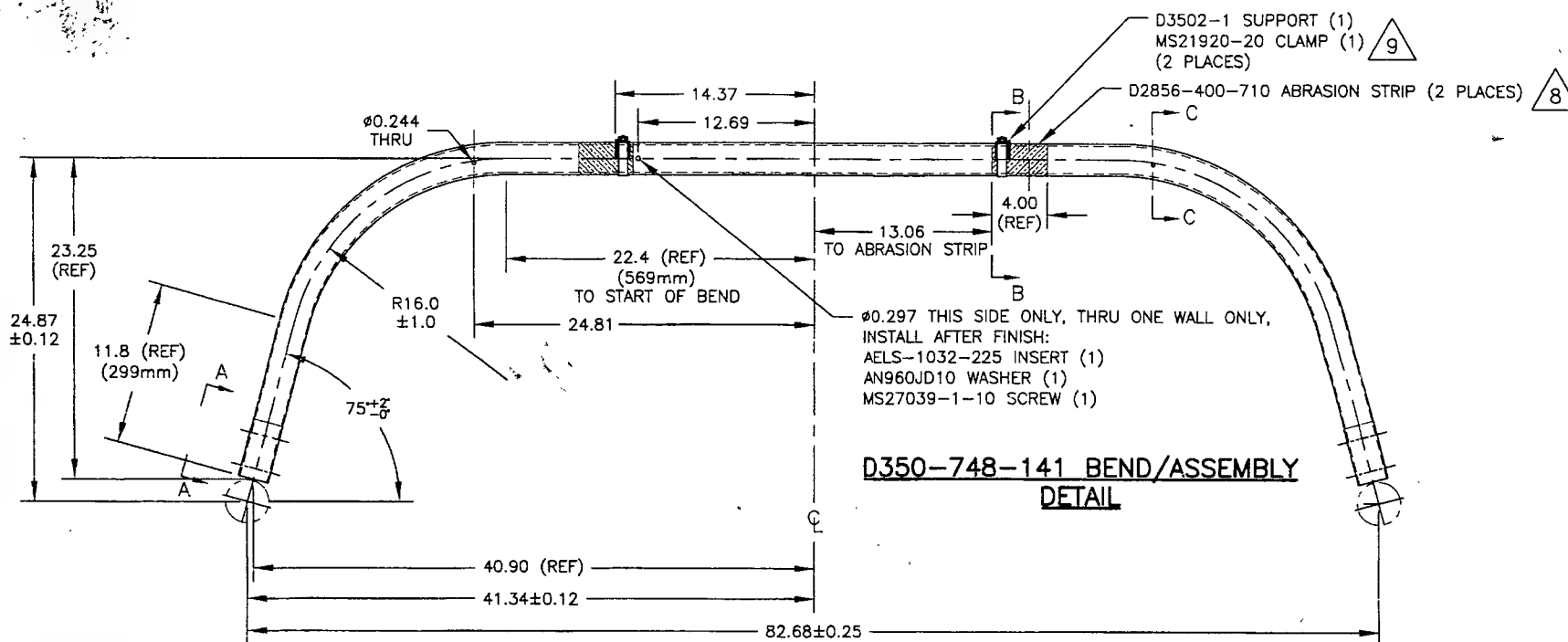
07.02.16 / *GP*
CUFF BEING REDUCED

OK *GP* 07.03.07

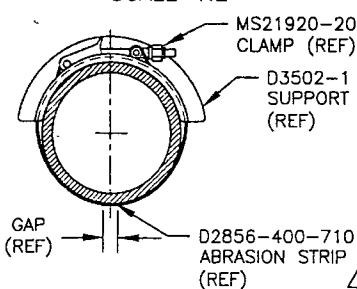
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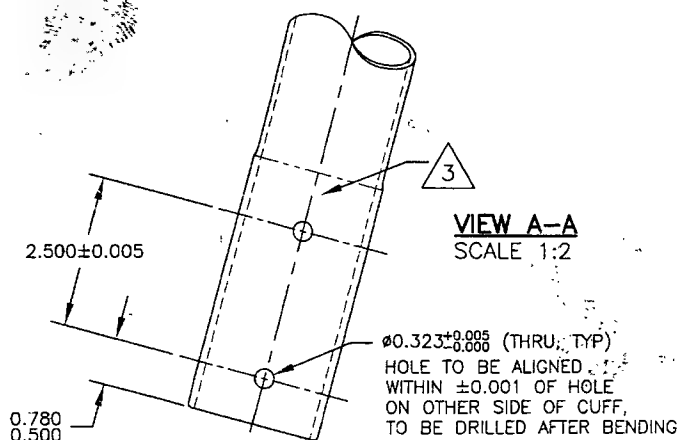
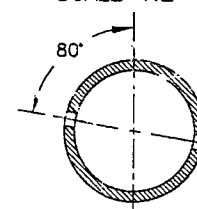




SECTION B-B
SCALE 1:2



SECTION C-C
SCALE 1:2



UNDER REVIEW

07.02.16

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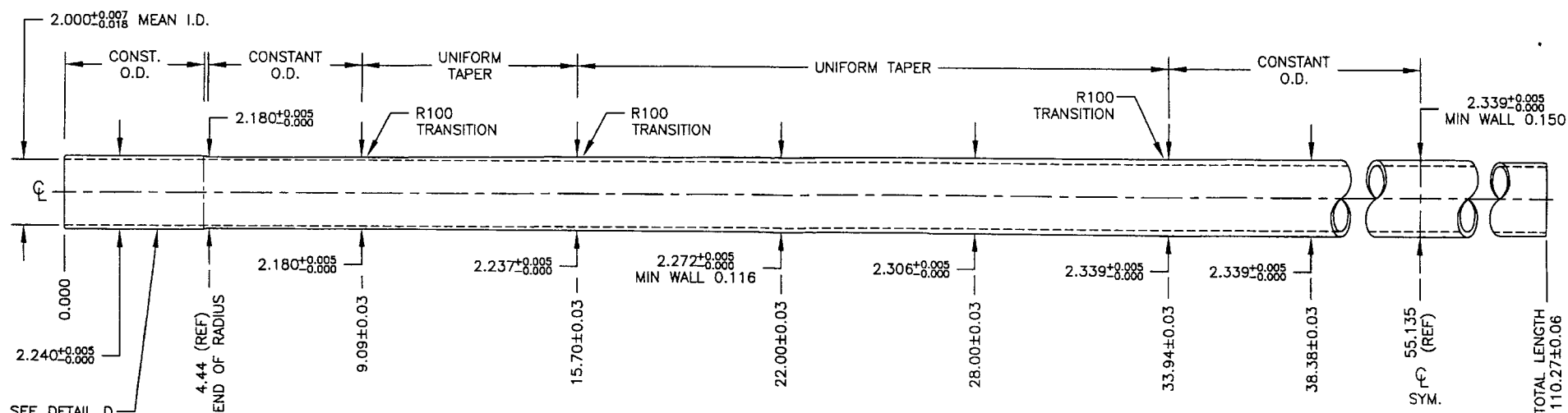
06.10.31

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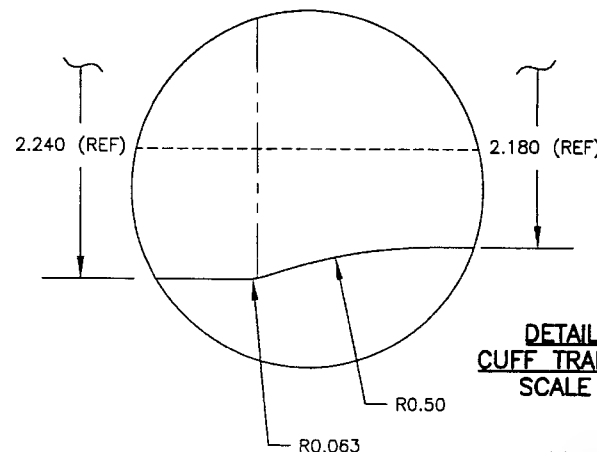
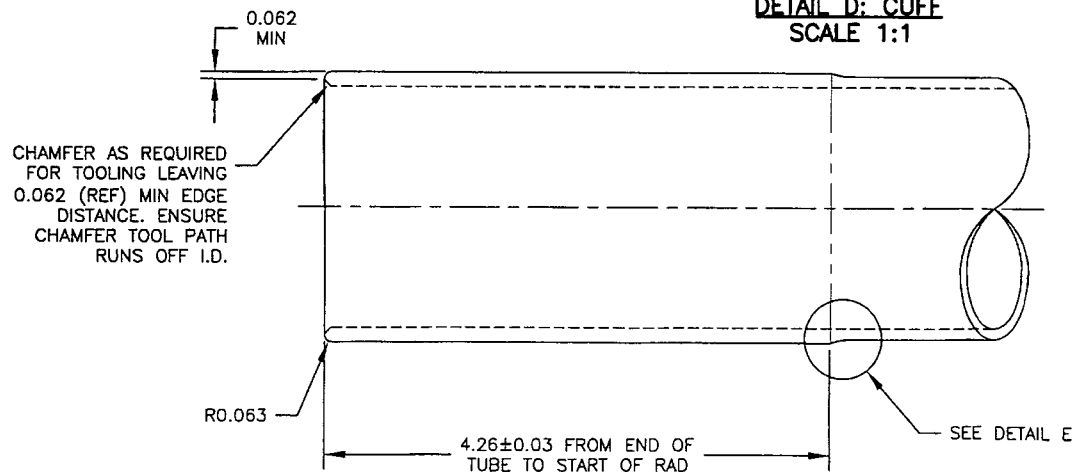
| | | | | | |
|---------|----------|----------|-------------------------------|-------------|--|
| DESIGN | q7 | DRAWN BY | q7 | DART | DART AEROSPACE LTD. WARRIMUR, ONTARIO, CANADA |
| CHECKED | # | APPROVED | # | DRAWING NO. | D350-748-141 |
| DATE | 06.10.31 | TITLE | CROSSTUBE (AS 350/355 HI FWD) | SHEET | 2 OF 3 |
| | | | | SCALE | 1:1 |

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WITHOUT NOTICE
WORK ORDER
NO. 32154A



D350-748-141 MACHINING DETAIL

DETAIL D: CUFF SCALE 1:1



DETAIL E: CUFF TRANSITION SCALE 9:1

RELEASED
06 10 31

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| | | | | | |
|---------|----------|----------|-------------------------------|-------------|---|
| DESIGN | 40 | DRAWN BY | 40 | DART | DART AEROSPACE LTD. HAMMERSBURY, ONTARIO, CANADA |
| CHECKED | # | APPROVED | # | DRAWING NO. | D350-748-141 |
| DATE | 06.10.31 | TITLE | CROSSTUBE (AS 350/355 HI FWD) | REV. D | SHEET 3 OF 3 |
| | | | | SCALE | 1:3 |

NO. 32154A
WORK ORDER
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VAC AERO
INTERNATIONAL INC.

PACKING SLIP

OAK 89868-1



HEAD OFFICE
1371 S EERS ROAD, OAKVILLE, ONTARIO
CANADA L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489



QUEBEC DIVISION
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

GST No.: R105468102

08/22/2007

MM / DD / YYYY

PAGE: 1

1DAR01

BILL TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

K6A 1K7

K6A 1K7

| | | |
|------------------|----------|--------|
| DATE SHIPPED | SHIP VIA | F.O.B. |
| 08/22/2007 | | ORIGIN |
| CUSTOMER P/O No. | JOB No. | TERMS |
| 00004289 | | COD |

| LN | PART NO | DESCRIPTION | UOM | QTY ORDERED | QTY SHIPPED | B/O QTY |
|----|----------|---|-----|-------------|-------------|---------|
| 01 | D350-718 | -141/241 | EA | 10 | 10 | 0 |
| | | Process Specifications: Procedure: 4353 HEAT TREATED TO 180 KSI PER AMS 2759-1C 100% HARDNESS CHECKED AS PER ASTM E-18 HRC 40-45 MATERIAL: 4130 SAND BLASTED 1 PIECE P/N D350748141 B32157, 1 PIECE P/N D350748241 B32161 1 PIECE P/N D350748141 B32153, 1 PIECE P/N D350748241 B32160 1 PIECE P/N D350748141 B32155, 1 PIECE P/N D350748241 B32159 1 PIECE P/N D350748141 B32154, 1 PIECE P/N D350748241 B32162 1 PIECE P/N D350748141 B32156, 1 PIECE P/N D350748241 B32158 | | | | |
| 02 | MC | MINIMUM CHARGE 375 LBS @ \$2.26/LB | | 1 | 1 | 0 |
| 03 | GB | GRIT BLASTING | | 1 | 1 | 0 |

No claims for shortage in weight or count will be entertained, unless presented within 5 working days after receipt of materials by customer.



VACUUM BRAZING · HEAT TREATING · SPECIAL PROCESSING · FURNACE EQUIPMENT
TURBINE COMPONENT OVERHAUL · PLASMA AND OTHER COATINGS



HEAT
TREATING



VAC AERO
INTERNATIONAL INC.

RELEASE NOT

GST No.: R105468102

OAK 89868-1



HEAD OFFICE
1171 SPEERS ROAD, OAKVILLE, ONTARIO
CANADA L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489



2009 WYECROFT ROAD, UNIT B
OAKVILLE, ONTARIO
CANADA L6L 6J4
TEL: (905) 827-7377 FAX: (905) 827-1380



QUEBEC DIVISION
7450 RUE VERITE STREET, ST LAURENT, QUEBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

08/22/2007

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PAGE: 1

BILL TO: 1DAR01
DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

K6A 1K7

K6A 1K7

| DATE SHIPPED | SHIP VIA | F.O.B. |
|------------------|----------|--------|
| 08/22/2007 | | |
| CUSTOMER P/O No. | JOB No. | ORIGIN |
| 00004289 | | |
| | | TERMS |
| | | COD |

| PART No. | DESCRIPTION | UOM | QTY ORD | QTY SHPD | TEST RESULTS |
|---|--------------------------------|-----------------------|---------|----------|--------------|
| D350-748 | -141/241 | EA | 10 | 10 | |
| Process Specifications: Procedure: 4353 HEAT TREATED TO 180 KSI PER AMS 2759-1C 100% HARDNESS CHECKED AS PER ASTM E-18 HRC 40-45 MATERIAL: 4130 SAND BLASTED | | | | | |
| <div style="border: 2px solid black; padding: 5px; display: inline-block;"> 100% HARDNESS TESTED <i>10 PS.</i> 42/43 HRC </div> | | | | | |
| 1 PIECE | P/N D350748141 B32157, 1 PIECE | P/N D350748241 B32161 | | | |
| 1 PIECE | P/N D350748141 B32153, 1 PIECE | P/N D350748241 B32160 | | | |
| 1 PIECE | P/N D350748141 B32155, 1 PIECE | P/N D350748241 B32159 | | | |
| 1 PIECE | P/N D350748141 B32154, 1 PIECE | P/N D350748241 B32162 | | | |
| 1 PIECE | P/N D350748141 B32156, 1 PIECE | P/N D350748241 B32158 | | | |

I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

Laura Robinson
Authorized Q.C. Inspector



VACUUM BRAZING - HEAT TREATING - SPECIAL PROCESSING - FURNACE EQUIPMENT
TURBINE COMPONENT OVERHAUL - PLASMA AND OTHER COATINGS



**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Oct-31-2007

CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St
Hawksbury, ON K6A 1K7

W/O #: 70675

INVOICE #: 36541

**CONTRACT OR
PURCHASE ORDER # PO4787**

DESCRIPTION: SKID

QTY 4

P/N # D350748141

S/N # B3215

**CADMIUM PLATE IAW AMS-QQ-P-416 REV. B TYPE 2 CLASS 1. MPI
IAW ASTM-E-1444. BAKE HEAT CHART #8407 & #8431.**

CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.

Approved Inspector:

William Maruszewski





VAC AERO
INTERNATIONAL INC.

PACKING SLIP

OAK 89868-1

☒ HEAD OFFICE
1371 STEERS ROAD, OAKVILLE, ONTARIO
CANAL A L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489

☐ QUEBEC DIVISION
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

GST No.: R105468102

08/22/2007

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PAGE: 1

BILL TO: 1DAR01
DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

K6A 1K7

K6A 1K7

| DATE SHIPPED | SHIP VIA | F.O.B. |
|------------------|----------|--------|
| 08/22/2007 | | ORIGIN |
| CUSTOMER P/O No. | JOB No. | TERMS |
| 00004289 | | COD |

| LN | PART NO | DESCRIPTION | UOM | QTY ORDERED | QTY SHIPPED | B/O QTY |
|----|----------|---|-----|-------------|-------------|---------|
| 01 | D350-718 | -141/241 | EA | 10 | 10 | 0 |
| | | Process Specifications: Procedure: 4353 HEAT TREATED TO 180 KSI PER AMS 2759-1C 100% HARDNESS CHECKED AS PER ASTM E-18 HRC 40-45 MATERIAL: 4130 SAND BLASTED 1 PIECE P/N D350748141 B32157, 1 PIECE P/N D350748241 B32161 1 PIECE P/N D350748141 B32153, 1 PIECE P/N D350748241 B32160 1 PIECE P/N D350748141 B32155, 1 PIECE P/N D350748241 B32159 1 PIECE P/N D350748141 B32154, 1 PIECE P/N D350748241 B32162 1 PIECE P/N D350748141 B32156, 1 PIECE P/N D350748241 B32158 | | | | |
| 02 | MC | MINIMUM CHARGE 375 LBS @ \$2.26/LB | | 1 | 1 | 0 |
| 03 | GB | GRIT BLASTING | | 1 | 1 | 0 |

No claims for shortage in weight or count will be entertained, unless presented within 5 working days after receipt of materials by customer.



VACUUM BRAZING - HEAT TREATING - SPECIAL PROCESSING - FURNACE EQUIPMENT
TURBINE COMPONENT OVERHAUL - PLASMA AND OTHER COATINGS





VAC AERO
INTERNATIONAL INC.

RELEASE NOT

GST No.: R105468102

OAK 89868-1



HEAD OFFICE
1371 SPEERS ROAD, OAKVILLE, ONTARIO
CANADA L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489



2009 WYECROFT ROAD, UNIT B
OAKVILLE, ONTARIO
CANADA L6L 6J4
TEL: (905) 827-7377 FAX: (905) 827-1380



QUEBEC DIVISION
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

08/22/2007

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PAGE: 1

BILL TO: 1DAR01
DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON
K6A 1K7

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON
K6A 1K7

| DATE SHIPPED | SHIP VIA | F.O.B. |
|------------------|----------|--------|
| 08/22/2007 | | |
| CUSTOMER P/O No. | JOB No. | ORIGIN |
| 00004289 | | |
| | | TERMS |
| | | COD |

| PART No. | DESCRIPTION | UOM | QTY ORD | QTY SHPD | TEST RESULTS |
|---|------------------------|---------|-----------------------|-------------|--------------|
| D350-748 | -141/241 | EA | 10 | 10 | |
| <p>Process Specifications: Procedure: 4353 HEAT TREATED TO 180 KSI PER AMS 2759-1C 100% HARDNESS CHECKED AS PER ASTM E-18 HRC 40-45 MATERIAL: 4130 ✓ SAND BLASTED</p> | | | | | |
| 1 PIECE | P/N D350748141 B32157, | 1 PIECE | P/N D350748241 B32161 | | |
| 1 PIECE | P/N D350748141 B32153, | 1 PIECE | P/N D350748241 B32160 | | |
| 1 PIECE | P/N D350748141 B32155, | 1 PIECE | P/N D350748241 B32159 | | |
| 1 PIECE | P/N D350748141 B32154, | 1 PIECE | P/N D350748241 B32162 | | |
| 1 PIECE | P/N D350748141 B32156, | 1 PIECE | P/N D350748241 B32158 | | |

100% HARDNESS TESTED
10 PCS.
42/43 HRC



I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

Diana Robinson
Authorized Q.C. Inspector



VACUUM BRAZING - HEAT TREATING - SPECIAL PROCESSING - FURNACE EQUIPMENT
TURBINE COMPONENT OVERHAUL - PLASMA AND OTHER COATINGS

